

## **Foraging behaviour of heterotrigona itama (apidae: meliponini) in residential areas**

### **ABSTRACT**

This study aims to investigate the foraging behaviour of *Heterotrigona itama* in exploiting food resources at a residential area, and the viability of this species to adapt to urban microclimatic conditions. *Heterotrigona itama* prefers to forage at areas closer to their nesting site, where diverse food sources are found. The marked bees of *H. itama* prefer to forage on various resources available at a 500-metre radius from the house yard. The obtained results indicate that the active foraging pattern of *H. itama* is negatively correlated to the time phases of a day ( $p < 0.05$ ). This phenomenon was contributed by the three peaks of foraging hours, which reached a peak in the early morning (6:30 to 8:00 a.m.), moderately peaked towards the evening (2:30 to 3:30 p.m.), and was greatest towards the afternoon (10:30 a.m. to 12:00 p.m.). The ambient temperature and relative humidity were not the primary factors influencing the average number of foragers exiting from and returning to the hives (temperature,  $p > 0.05$ ; and humidity,  $p > 0.05$ ). There was a difference between the varieties of content resources collected by the bees ( $p < 0.05$ ). The nectar or water sources was the highest material (51.39%) that was brought back to the hive by foragers, followed by resin (34.73%) and pollen (13.87%). There was a significant difference in foraging time phases by returning foragers for collecting resin ( $p < 0.05$ ) and nectar or water ( $p < 0.02$ ), but there was no significant difference in foraging time phases found for pollen ( $p > 0.05$ ). The results showed that *H. itama* is able to withstand urban microclimate conditions, and successfully incorporated pollen, nectar or water, and resin obtained from floral and non-floral resources into their diet.